CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1-36.

- After this Amendment: Claims 1-2, 4-6, 8-35, and 37

Non-Elected, Canceled, or Withdrawn claims: 3, 7, and 36

Amended claims: 1-2, 4-6, 8-14, 24, and 31

New claims: 37

Claims:

1. **(Currently Amended)** One or more ~~processor-accessible~~ storage

media comprising processor-executable instructions that, when executed, direct

a device to perform actions comprising:

receiving from an entity a bandwidth allocation request stipulating a

requested bandwidth amount for a stream of the entity for a current superframe;

~~ascertaining an unserviced bandwidth amount of the stream of the entity~~

~~from a previous superframe; and~~

determining an unserviced bandwidth amount from a previous superframe;

and,

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determining an allocated bandwidth amount for the stream of the entity based, at least in part, on the unserviced bandwidth amount ~~and responsive to the bandwidth allocation request~~ and a smoothing factor.

2.   **(Currently Amended)** The one or more ~~processor-accessible~~ storage media as recited in claim 1, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

transmitting an allocation broadcast that includes the allocated bandwidth amount to the entity.

3.   **(Canceled)**

4.   **(Currently Amended)** The one or more ~~processor-accessible~~ storage media as recited in ~~claim 3~~ claim 1, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

updating a reserved bandwidth amount of the stream of the entity for the current superframe using a newly-arrived bandwidth amount, a previous reserved bandwidth amount of the stream of the entity from the previous superframe, and ~~a smoothing factor,~~ the smoothing factor which modulates how

quickly the reserved bandwidth amount changes from one superframe to another.

5. **(Currently Amended)** The one or more ~~processor-accessible~~ storage media as recited in claim 1, wherein the action of receiving comprises an action of:

receiving the bandwidth allocation request via a wireless communication.

6. **(Currently Amended)** The one or more ~~processor-accessible~~ storage media as recited in claim 1, wherein the action of ascertaining comprises an action of:

retrieving from memory the unserviced bandwidth amount.

7. **(Canceled)**

8. **(Currently Amended)** The one or more ~~processor-accessible~~ storage media as recited in claim 1, wherein the action of determining comprises an action of:

assigning at least one bandwidth unit to the unserviced bandwidth amount.

9.   (Currently Amended) The one or more ~~processor-accessible~~ storage media as recited in claim 8, wherein the at least one bandwidth unit comprises at least one time unit.

10.   (Currently Amended) The one or more ~~processor-accessible~~ storage media as recited in claim 8, wherein the action of determining further comprises an action of:

assigning at least one bandwidth unit to a reserved bandwidth amount of the stream of the entity.

11.   (Currently Amended) The one or more ~~processor-accessible~~ storage media as recited in claim 10, wherein the action of determining further comprises an action of:

assigning at least one bandwidth unit to an overloaded bandwidth amount of the stream of the entity after the assigning of the at least one bandwidth unit to the unserviced bandwidth amount and to the reserved bandwidth amount.

12.   (Currently Amended) The one or more ~~processor-accessible~~ storage media as recited in claim 11, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

combining the at least one bandwidth unit assigned to the unserviced bandwidth amount, the at least one bandwidth unit assigned to the reserved bandwidth amount, and the at least one bandwidth unit assigned to the overloaded bandwidth amount into an allocated bandwidth amount comprising a time slot to be allocated to the stream of the entity for the current superframe.

13. **(Currently Amended)** The one or more ~~processor-accessible~~ <u>storage</u> media as recited in claim 10, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

detecting if an available bandwidth resource for the current superframe has been exhausted after the action of assigning at least one bandwidth unit to the reserved bandwidth amount of the stream of the entity;

if not, assigning at least one bandwidth unit to an overloaded bandwidth amount of the stream of the entity.

14.   (Currently Amended) A device comprising:

at least one processor; and

one or more media including processor-executable instructions that are capable of being executed by the at least one processor, the processor-executable instructions adapted to direct the device to perform actions comprising:

receiving from an entity a bandwidth allocation request stipulating a requested bandwidth amount for a stream of the entity for a current superframe;

ascertaining an unserviced bandwidth amount of the stream of the entity from a previous superframe; and

determining an allocated bandwidth amount for the stream of the entity based on the unserviced bandwidth amount and ~~responsive to the bandwidth allocation request~~ a smoothing factor.

15.   (Original) The device as recited in claim 14, wherein the device further comprises:

a transceiver that is adapted to transmit and receive wireless communications and is capable of facilitating the action of receiving from an entity a bandwidth allocation request.

16.   (Original) The device as recited in claim 14, wherein the entity comprises at least one of a user or another device.

17.   (Original) The device as recited in claim 14, wherein the requested bandwidth amount for the current superframe includes the unserviced bandwidth amount from the previous superframe without separately designating the unserviced bandwidth amount.

18.   (Original) The device as recited in claim 14, wherein the ascertaining action comprises:

retrieving the unserviced bandwidth amount from the one or more media.

19.   (Original) The device as recited in claim 14, wherein the device is capable of operating under an IEEE 802.15.3 standard in accordance with a time division multiple access (TDMA) technology.

20.   (Original) The device as recited in claim 14, wherein the processor-executable instructions are adapted to direct the device to perform a further action comprising:

segmenting the requested bandwidth amount into a newly-arrived bandwidth amount of the stream of the entity and the unserviced bandwidth amount;

wherein the determining action comprises:

assigning a number of bandwidth units equaling the unserviced bandwidth amount prior to assigning any bandwidth units to the newly-arrived bandwidth amount.

21. **(Original)** The device as recited in claim 20, wherein the processor-executable instructions are adapted to direct the device to perform a further action comprising:

assigning at least one bandwidth unit to an unserviced bandwidth amount of another stream of another entity prior to assigning a bandwidth unit to the newly-arrived bandwidth amount of the stream of the entity.

22. **(Original)** The device as recited in claim 14, wherein the determining action comprises:

assigning at least one bandwidth unit to the unserviced bandwidth amount first;

assigning at least one bandwidth unit to a reserved bandwidth amount of the stream of the entity second;

computing an overloaded bandwidth amount of the stream of the entity by subtracting the unserviced bandwidth amount and the reserved bandwidth amount from the requested bandwidth amount; and

assigning at least one bandwidth unit to the overloaded bandwidth amount third if any bandwidth units remain available.

23. **(Original)** The device as recited in claim 14, wherein the processor-executable instructions are adapted to direct the device to perform further actions comprising:

calculating the unserviced bandwidth amount for the previous superframe when determining an allocated bandwidth amount for the stream of the entity for the previous superframe; and

retaining, from the previous superframe to the current superframe, the unserviced bandwidth amount using the one or more media for utilization in the action of ascertaining.

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24.   (Currently Amended) A method for bandwidth allocation, the method comprising:

receiving from multiple entities for multiple streams current bandwidth allocation requests stipulating current requested bandwidth amounts for the multiple streams of the multiple entities;

segmenting the current requested bandwidth amounts into current newly-arrived bandwidth amounts and previous unserviced bandwidth amounts associated with the multiple streams of the multiple entities;

assigning bandwidth units to the previous unserviced bandwidth amounts;

detecting if available bandwidth units have been consumed in the assigning; and

if available bandwidth units have not been consumed in the assigning, assigning the available bandwidth units to the current newly-arrived bandwidth amounts according to current reserved bandwidth amounts for the multiple streams of the multiple entities based on a smoothing factor.

25. **(Original)** The method as recited in claim 24, further comprising:

if available bandwidth units have been consumed in the assigning, calculating current unallocated bandwidth amounts for the multiple streams of the multiple entities and noting the current unallocated bandwidth amounts for subsequent use in segmenting subsequent requested bandwidth amounts.

26. **(Original)** The method as recited in claim 25, further comprising:

detecting if remaining available bandwidth units have been consumed in the two assignings; and

if not, assigning the remaining available bandwidth units to current overloaded bandwidth amounts of the multiple streams of the multiple entities in ascending order.

27. **(Original)** The method as recited in claim 24, further comprising:

updating previous reserved bandwidth amounts for the multiple streams of the multiple entities to create the current reserved bandwidth amounts using at least the current newly-arrived bandwidth amounts.

28. **(Original)** The method as recited in claim 24, further comprising:

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calculating current unserviced bandwidth amounts for the multiple streams

of the multiple entities by deducting assigned bandwidth units of one or more

assignments from the current requested bandwidth amounts.

29. **(Original)** The method as recited in claim 24, wherein the

bandwidth units comprise time units; and

further comprising:

combining assigned bandwidth units of one or more assignments into

allocated time slots for the multiple streams of the multiple entities; and

sending positions and durations of the allocated time slots for the multiple

streams to the multiple entities in at least one allocation broadcast.

30. **(Original)** One or more processor-accessible media comprising

processor-executable instructions that, when executed, direct a device to

perform the method as recited in claim 24.

31. **(Currently Amended)** An arrangement for bandwidth allocation,

comprising:

ascertainment means for ascertaining respective previous unserviced

bandwidth amounts associated with respective streams; and

determination means for determining respective current allocated bandwidth amounts for the respective streams based on the ascertained respective previous unserviced bandwidth amounts <u>and a smoothing factor</u>.

32. **(Original)** The arrangement as recited in claim 31, further comprising:

transceiver means for transceiving wireless communications;

wherein the transceiver means comprises:

receiving means for receiving from respective entities respective bandwidth allocation requests stipulating respective current requested bandwidth amounts for the respective streams; and

transmission means for transmitting to the entities at least one allocation broadcast including the determined respective current allocated bandwidth amounts for the respective streams.

33. **(Original)** The arrangement as recited in claim 32, wherein the determination means further determines the respective current allocated bandwidth amounts for the respective streams responsive to the respective bandwidth allocation requests stipulating the respective current requested bandwidth amounts.

34. (Original) The arrangement as recited in claim 31, further comprising:

segmentation means for segmenting respective current requested bandwidth amounts into respective current newly-arrived bandwidth amounts and the ascertained respective previous unserviced bandwidth amounts;

wherein the determination means comprises:

assignment means for assigning bandwidth amounts to the ascertained previous unserviced bandwidth amounts prior to the current newly-arrived bandwidth amounts.

35. (Original) The arrangement as recited in claim 34, wherein the assignment means further assigns available bandwidth amounts to the current newly-arrived bandwidth amounts prior to respective current overloaded bandwidth amounts of the respective streams; and

wherein the determination means further comprises:

detection means for detecting if a time resource of assignable bandwidth amounts is exhausted;

wherein the assignment means ceases assigning bandwidth amounts if the time resource of assignable bandwidth amounts is detected as being exhausted by the detection means.

36.   (Canceled)

37.   (New)   One or more storage media containing instructions that, when executed, direct a device to allocate bandwidth by:

ascertaining respective previous unserviced bandwidth amounts associated with a plurality of streams; and

determining respective current allocated bandwidth amounts for the respective streams based on the ascertained respective previous unserviced bandwidth amounts and a smoothing factor.